

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006469**Date Inspected:** 25-Apr-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1845**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 645**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG and Tower Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Sun Bo, Wang Chuan Qing

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP340-001, DP449-001 and DP125-002.

Tower Bay 10

This QA Inspector performed random ultrasonic inspections of North Tower Lift 3 Skin Plate A butt weld NSD1-FASA3-1A/E-2 R1. This weld had previously been ultrasonically inspected and accepted by ZPMC inspection personnel. Items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see the TL6027 Ultrasonic Test Report.

The QA Inspector observed ZPMC welder Mr. Dong Haitao, stencil 053869 is using welding procedure

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specification WPS-B-T-2332-TC-P5-F to complete flux cored weld SSD1-FCSA3-1B/C-61. The QA Inspector observed that the base material where the welding was being made had been preheated with an electric heater and ZPMC QC CWI Mr. Wang Chuan Qing was monitoring this welding. The QA Inspector observed Mr. Qing had recorded 310 amps, 31.5 volts and a welding speed of 330 mm per minute. The QA Inspector measured the welding current and confirmed Mr. Qing's welding measurements appear to be accurate. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Dong Jiaguan, stencil 040345 is using welding procedure specification WPS-B-T-2332-TC-P5-F to complete flux cored weld SSD1-FCSA3-1B/C-51. The QA Inspector observed that the base material where the welding was being made had been preheated with an electric heater and ZPMC QC CWI Mr. Wang Chuan Qing was monitoring this welding. The QA Inspector observed Mr. Qing had recorded 318 amps, 31.6 volts and a welding speed of 330 mm per minute. The QA Inspector measured the welding current and confirmed Mr. Qing's welding measurements appear to be accurate. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Li Hanshan, stencil 048784 is using welding procedure specification WPS-B-T-2332-TC-P5-F to complete flux cored weld SSD1-FCSA3-1B/C-52. The QA Inspector observed that the base material where the welding was being made had been preheated with an electric heater and ZPMC QC CWI Mr. Wang Chuan Qing was monitoring this welding. The QA Inspector observed Mr. Qing had recorded 318 amps, 31.6 volts and a welding speed of 330 mm per minute. Items observed by the QA Inspector appear to comply with project specifications.

OBG Bay 9

The QA Inspector monitored welding of closed rib Production Monitoring Test representing deck plates DP107-001 and DP105-001 which were welded using one single base plate at approximately 00:35 hours using gantry #2. The QA Inspector observed four ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-4 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on two PMT closed rib welds at the same time. ZPMC has multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. The QA Inspector observed a welding travel speed of approximately 532 mm per minute for the root passes and 520 mm per minute for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Ms. Zhang Liping, stencil 201840 completed the root pass of weld #1 with a welding current of approximately 360 amps and 31.1 volts and the cover pass welding current of approximately 690 amps and 25.0 volts. Welder Ms. Yuen Feng Chuan, stencil 59355 completed the root pass of weld #2 with a welding current of approximately 360 amps and 30.8 volts and the cover pass welding current of approximately 685 amps and 24.4 volts. Welder Ms. Wang Xiaorong, stencil 059445 completed the root pass of weld #3 with a welding current of approximately 355 amps and 31.3 volts and the cover pass welding current of approximately 680 amps and 25.3 volts. Welder Mr. Chen Jie, stencil 059468 completed the root pass of weld #4 with a welding current of approximately 370 amps and 30.9 volts and the cover pass welding current of approximately 685 amps and 24.3 volts.

The QA Inspector performed random visual inspection of the root pass and cover passes and items observed appear to comply with project specifications. Following completion of the welding ZPMC QC CWI Inspector Mr. Sun Bo marked a 500 mm length of the welds as being the areas that are to be representative of this PMT test. The

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QA Inspector observed ZPMC NDE inspector Mr. Tang Xingshan performing ultrasonic of each of the welds in the areas where Mr. Bo had marked for PMT testing. Following ZPMC's UT acceptance the QA Inspector marked a total of 10 locations where macroetch samples are to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Sun Bo and ABF representative Ms. Lu Yun visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated 04-26-2009. The QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appear to comply with project specifications. See the photograph below for additional information.



Summary of Conversations:

See above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

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| Inspected By: | Dawson,Paul | Quality Assurance Inspector |
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| Reviewed By: | Clifford,William | QA Reviewer |
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